

EXHIBIT A



THIS RESEARCH REPORT EXPRESSES SOLELY OUR OPINIONS. We are short sellers. We are biased. So are long investors. So is Hyzon. So are the banks that raised money for the Company. If you are invested (either long or short) in Hyzon, so are you. Just because we are biased does not mean that we are wrong. Use BOC Texas, LLC's research opinions at your own risk. This report and its contents are not intended to be and do not constitute or contain any financial product advice. Investors should seek their own financial, legal and tax advice in respect of any decision regarding any securities discussed herein. You should do your own research and due diligence before making any investment decisions, including with respect to the securities discussed herein. We have a short interest in Hyzon's stock and therefore stand to realize significant gains in the event that the price of such instrument declines. Please refer to our full disclaimer located on the last page of this report

COMPANY: Hyzon Motors Inc. | NASDAQ: HYZN
INDUSTRY: Hydrogen Fuel Cell Electric Vehicle SPAC

PRICE (AS OF CLOSE
9/27/2021)
USD 9.21
MARKET CAP
USD 2.3 BILLION

We are short Hyzon Motors Inc (“Hyzon” or the “Company”) (NASDAQ: HYZN), a zero -revenue hydrogen EV SPAC which we liken to a *Chinese Lordstown Motors*. In our opinion, Hyzon’s supposed major customers are a fake-looking Chinese shell company incorporated three days before the deal announcement and a tiny New Zealand startup which told us they are not really a customer.

Hyzon is just a repackaging of a flailing Chinese parent company which has been trying to sell the same hydrogen fuel cells without much success for 17 years. The parent entity was delisted from the Chinese OTC exchange in early 2021 at an enterprise value of sub \$200 million. Hyzon is just a worse version of this same business in SPAC form, yet trades at 10x the valuation. We think Chinese investors obviously knew best.

Notably for a zero revenue SPAC banking on the future value of its technology to save its business, **two of Hyzon’s chief technology officers have resigned in the past 15 months. The Company is only 20 months old.** Ultimately, we think Hyzon’s parent has taken advantage of the general suspension of disbelief in financial markets to enrich insiders by repackaging an old technology in a fig leaf of misleading deal announcements and illusory customer contracts.

- Hyzon’s Largest Customer is a Fake-Looking Chinese Shell Entity Formed 3 Days Before Deal Announced.** We think Hyzon’s largest customer looks fake. On September 9, 2021, Hyzon’s stock shot up 29% on a pre-market announcement that it secured a major new deal for 500 trucks (including 100 orders in 2021) from a new Chinese customer, Shanghai HongYun. Yet Chinese government records show that Shanghai HongYun was established only three days before Hyzon announced the deal and has **no paid in capital**. It has no WeChat account or website. The supposedly major customer appears to be just an empty shell entity. In our opinion, such evidence suggests that Hyzon announced a major order with a fake looking Chinese customer just to pump its stock price.
- Channel Checks Reveal Next Largest Customer Not Really a Customer.** Hyzon claims that a New Zealand infrastructure startup named Hiringa supposedly signed an agreement to order 1,500 trucks by 2026, purportedly making it Hyzon’s next largest customer. Yet when we channel checked these claims with Hiringa, its executive **clarified that Hiringa was not actually a customer, but a “channel partner”** assisting Hyzon in marketing vehicles to real end customers in New Zealand. Hiringa is a small startup operating out of a house in New Zealand which wants to raise money to build hydrogen fuel stations. Based on our conversation, Hiringa has neither the capability nor the current intention to purchase trucks from Hyzon.
 - Significant 2021 Delivery and Guidance Miss.** According to Hyzon, Hiringa will account for 24% of the Company’s projected deliveries in 2021. Yet Hiringa **stated point blank that no deliveries would be taken in 2021**, and the first validation trucks would be delivered for testing in *March or April 2022*, at the earliest. Hiringa supposedly accounts for 24% of Hyzon’s projected 2021 deliveries, so we expect a major guidance miss. We think it is highly misleading for Hyzon to continually reaffirm delivery and revenue guidance and characterize such revenues as “100% certain” when Hiringa admits that it will not take any deliveries this year.
- Phantom Big-Name Customers Suggest Overstated Orders and Financial Projections.** In its much hyped initial investor presentation filed in February 2021, Hyzon generated considerable buzz around its SPAC by claiming that big household names - including **Coca Cola, Ikea, and Heineken** - were already “top tier customers” and “partners.” Yet in the following months, after other EV SPACs like Lordstown Motors got into trouble for fabricating customer contracts, Hyzon quietly dropped these household names from its investor decks. In the four months between February 2021 and July 2021, nearly all of Hyzon’s previously named blue chip customers disappeared from its disclosures altogether. In aggregate, Hyzon dropped customers supposedly accounting for \$700 million in future orders from its subsequent decks. Remarkably however, despite apparently losing many of its most prominent customers, Hyzon’s financial projections remained unchanged. We think it’s highly misleading for Hyzon to have apparently lost most of its blue-chip customers without substantially revising future revenue projections downward.

- **Former Executives Left in Part Because of Concerns over Misrepresentations on Customer Contracts.** We spoke with one former senior executive who left the Company after only a few months. He said he “didn’t like the way [customer contracts] were being presented” and compared Hyzon “**a bit like unfortunately what Nikola was doing... I was very uncomfortable with that.**” In our opinion, such accounts corroborate the other evidence showing that Hyzon is likely overstating customer relationships or misrepresenting its contracts.
4. **Hyzon is Just a Repackaging of Its Chinese Parent Company, a 17-year-old Business Recently Valued as a Microcap.** Hyzon is just a repackaging of its parent company, *Horizon*, a Chinese hydrogen fuel cell business that recently delisted from the Chinese OTC market in March 2021 at an enterprise value of just \$190 million. *Horizon* has been trying to sell its fuel cell technology for years, without meaningful success. Chinese filings published by *Jiangsu Horizon* suggest that its **fuel cell unit sales have declined by 81% since 2019**. By the time Hyzon’s parent delisted, *Horizon* struggled with minimal (and declining) sales and a microcap valuation, making it absurd that Hyzon garnered a 10x valuation on the notion that it has some preferential “access” to the same fuel cell technology.
 5. **Hyzon’s Projections are Fantasy: Parent’s Financials and Former Executives Suggest Hyzon May Earn 5-10% Gross Margins, at Best.** Without any current revenue, Hyzon’s share price is contingent on its projected 32% gross margins on future vehicle sales. This is pure fantasy. To put Hyzon’s projected gross margins in perspective, a 32% projected gross margin is nearly the twice the industry average for established vehicle manufacturers. The leading EV brand, Tesla, reports a gross margin of 22%. Hyzon doesn’t make vehicles, nor does it plan to. It pays other companies to retrofit vehicles with fuel cells purchased from its parent company. A former Hyzon senior executive projected that Hyzon would likely generate **gross margins of 5-10% on vehicle sales at best**. Even when Hyzon starts making fuel cells itself, which will not be for some time, its parent’s Chinese financials show that fuel cell manufacturing is only a small fraction of the EV production value chain. At either industry average margins (likely too generous) or a more realistic 5-10% gross margin, we don’t think Hyzon will generate any positive EBITDA or free cash flow in the next five years.
 6. **Two CTO Resignations in 15 Months.** Hyzon is a zero revenue SPAC whose stock price is contingent on the value of its yet undeveloped vehicle technology to generate future revenues. Yet **two of Hyzon’s CTOs have resigned in the past 15 months**, even though Hyzon was only formed 20 months ago. The first CTO resigned after just five months at Hyzon. The second, Gary Robb, just resigned (September 2021). If Hyzon’s technology is supposedly world class, and the foundation for its hockey stick like future revenue growth, we question why the critical officers in charge of such technology apparently have such little faith in either the Company or the technology (or both) that they stepped down, despite the obvious financial incentives to remain at the SPAC.

Ultimately, we think Hyzon’s parent has taken advantage of the general suspension of disbelief in financial markets to enrich insiders by repackaging an old technology in a fig leaf of misleading deal announcements and illusory customer contracts. In our opinion, it is akin to a *Chinese Lordstown Motors*.

1. Hyzon's Largest Customer is a Fake-Looking Chinese Shell Entity Formed 3 Days Before Deal Announced.

We think Hyzon's largest customer looks fake. On September 9, 2021, Hyzon's stock shot up 29% largely on the strength of a pre-market announcement by the Company that it had secured a major new vehicle deal.

Hyzon [announced](#) that it had signed a Memorandum of Understanding ("MoU") with a new Chinese customer, Shanghai Hydrogen HongYun Automotive Co., Ltd. ("[Shanghai HongYun](#)"), for the sale of 500 trucks. In the announcement, Hyzon claimed that the customer expects to order 100 of these trucks in 2021, with the remaining 400 trucks to be ordered in 2022. This makes Shanghai HongYun by far one of Hyzon's largest near-term customers.

# of Vehicles	FY2021	FY2022
Shanghai HongYun	100	400
Company Delivery Guidance as of July 2021	85	658

Source: Hyzon Disclosures

To put the size of the order in context, the 100-truck-order supposedly placed in 2021 is larger than the Company's previously guided total deliveries for the year. The market duly reacted, causing Hyzon's stock to rip as high as 29% on the day.

If authentic, Hyzon's deal with Shanghai HongYun is worth as much as \$250 million.¹ For a commitment of that size, we would typically expect the counterparty to be a deep-pocketed and well-established logistics company with sufficient operating footprint, infrastructure and track record to purchase and deploy 500 new hydrogen fueled trucks.

But when we looked up Shanghai HongYun on China's National Enterprise Credit Information Publicity System, we found that Shanghai HongYun was **established only three days before Hyzon announced the deal**.

Company Name: Shanghai Hydrogen HongYun Automotive. Co	
统一社会信用代码: 91310000MA7AH8B707	企业名称: 上海氢力鸿运汽车有限公司
类型: 有限责任公司(自然人投资或控股)	法定代表人: 寇健
注册资本: 1000.000000万人民币	成立日期: 2021年09月06日
营业期限自: 2021年09月06日	营业期限至: 2041年09月05日
登记机关: 自由贸易试验区临港新片区市场监督管理局	核准日期: 2021年09月06日

Date of Establishment:
Sept 6, 2021

Source: [National Enterprise Credit Information Publicity System](#)

The Chinese corporate registry also shows that Shanghai HongYun has **no paid in capital**.

股东名称	Shareholder Name	Kou, Jian 寇健
认缴额 (万元)	Subscribed Capital	RMB 9.5M 950
实缴额 (万元)	Paid In Capital	None
股东名称	Shareholder Name	Zhong, Dequan 钟德全
认缴额 (万元)	Subscribed Capital	RMB 0.5M 50
实缴额 (万元)	Paid In Capital	None

Source: [National Enterprise Credit Information Publicity System](#)

With no paid in capital, the customer appears to be merely an empty shell company. Shanghai HongYun does not yet have an official phone number, email, WeChat or website that we could find.²

¹ Based on Hyzon's own disclosure of truck prices: [Hyzon Investor Presentation July 2021, p23](#)

² For those unfamiliar, almost all legitimate Chinese businesses with an operating footprint have a WeChat account.

Shanghai Hydrogen Hongyun Automobile Co., Ltd. [Download report](#) [notes](#) [Monitor risk](#) [fe](#)

#Wholesale and retail #批发业 #上海 #Fengxian District 2021-09-08

Legal representative: Kou Jian Associate 1 [Edit company info](#)

company> Unified Social Credit Code: 91310000MA7AH8B707

Phone: No Official website: No

Email: No

Address: China (Shanghai) Pilot Free Trade Zone, Lingang New Area, Lane 1, Lane 1800, Xinyang Road... [Nearby companies](#)

Introduction: Shanghai Hydrogen Hongyun Automobile Co., Ltd. was established on September 6, 2021. The legal representative is Kou... [Unfold](#)

Source: <https://www.qcc.com/firm/e18cbf89a85f34fdb18d89c09197c675.html>

Hyzon cannot claim that HongYun is the subsidiary of a larger corporation because its two sole shareholders are individuals.

Shareholders and investors information see the final beneficiaries>		Shareholding ratio
Kou	Kou Jian	
	Major shareholder	Associated with 5 companies>
	The actual controller	95.00%
	Ultimate beneficiary	
Bell	Zhong Dequan	Associated with 2 companies>
		5.00%

Source: <https://www.qcc.com/firm/e18cbf89a85f34fdb18d89c09197c675.html>

We checked all the companies associated with Kou Jian, the 95% owner and legal representative of HongYun, and Zhong Dequan, the 5% owner of HongYun. All the companies appear to be small. Many of them have no active website or WeChat account and had no more than 5 employees as of 2020.

Associated Company	Business Description	Connections	Paid In Capital (RMB M)	2020 Reported Employee Count	Active Website/ WeChat Account
Shanghai Lanzhou Industrial	Agent for German Natural Clay Paint VOLVOX	Kou Jian is the legal rep and 96% owner	5	1	Yes
Shanghai Yujing Hongcheng Investment Management Consulting	Bookkeeping	Kou Jian is the legal rep and 80% owner	0.5	5	None
Shanghai Muya International Cargo Freight Agent	International Cargo Freight Agent	Kou Jian is the 20% owner	5	2	None
Shanghai Haoliang Furniture	Selling Furniture	Kou Jian is the 5% owner	0.1	1	None
Shanghai Xiangben Precision Machinery	General equipment manufacturing	Zhong Dequan is the legal rep and 70% owner	0.1	0	None

Source: [qcc.com](https://www.qcc.com)

As we will discuss in the next section, interviews with other purported customers indicate that Hyzon is far behind its vehicle delivery claims to investors and will likely miss guidance both in 2021 and going forward by a wide margin. We suspect that given these and other setbacks, Hyzon was desperate.

This likely explains why Hyzon announced a major order with a Chinese customer formed **just three days before the announcement**, with no paid in capital and no operating footprint, website or WeChat account. In our opinion, such evidence suggests that Hyzon announced a bogus deal with a fake looking Chinese customer to pump its stock price.

2. Channel Checks Reveal Next Largest Customer Not Really a Customer; Significant 2021 Delivery and Guidance Miss

Hyzon's next largest customer is a tiny New Zealand startup who told us they are not really a customer. Based on our conversation, we do not think that Hiringa has the obligation, the intention, or the capability to purchase the trucks Hyzon claimed in its announcement.

Hiringa has long been a key customer in Hyzon's SPAC narrative. At the height of SPAC mania in February 2021, Hyzon [announced](#) that it had signed an agreement to build and supply 1,500 hydrogen powered vehicles for Hiringa, with the first batch of 20 trucks "expected to enter service" in 2021.³

ROCHESTER, N.Y., Feb. 17, 2021 /PRNewswire/ -- Hyzon Motors Inc. ("Hyzon") and New Zealand's Hiringa Energy ("Hiringa") are pleased to announce the two companies have signed [a vehicle supply agreement](#), with Hyzon commissioned to build and supply Hiringa with zero emission Heavy Goods Vehicles (HGV). The hydrogen fuel cell-powered trucks, to be assembled at Hyzon's facility in Winschoten, The Netherlands, will be manufactured in full compliance with local New Zealand requirements and [the first batch of vehicles are expected to enter service in New Zealand by the end of 2021. Hyzon plans to have up to 1,500 fuel cell trucks on the road in New Zealand by 2026 as part of the agreement with Hiringa.](#)

Source: [Hyzon Press Release](#)

Hyzon also highlighted the Hiringa contract in a YouTube promotional video by its CEO Craig Knight in March 2021.



Source: <https://youtu.be/ZbVH7nRcegg?t=164>

To channel check Hyzon's claims, we spoke with a senior Hiringa executive. Although they remain interested in the project, **Hiringa explained to us that they are not actually a customer**, but a "**channel partner**" for Hyzon's vehicles. Hiringa does not intend to pay for or take title over the trucks, but merely facilitate the sale of hydrogen trucks to third parties.

"We're effectively a channel partner model if you like."

"Our business model is not to buy the trucks. We do the refueling.... we're effectively an unpaid market channel"

"There's no point in us being the middleman. So [the end customer] will physically pay for the trucks and they will physically take title."

- Hiringa Executive

³ [Hyzon Investor Presentation February 2021, p18](#)

This is not a matter of semantics. According to Hiringa, it has no current intention (or funds) to purchase 1,500 trucks from Hyzon, but merely to act as a conduit to encourage other New Zealand heavy truck operators to purchase trucks from Hyzon.

This makes more sense, as Hiringa does not have anywhere near the financial resources to pay for 1,500 trucks, being a company **with less than 20 employees according to LinkedIn and supposedly operating out of a house in New Zealand.**⁴ Rather than purchasing 1,500 trucks, Hiringa plans to build fuel stations with the hope of facilitating future purchases from end customers.

Hiringa also informed us that the **1,500-truck agreement claimed by Hyzon in its investor presentations is not a binding order**, and that it merely represents a right, not an obligation, to buy.

“That’s a right to buy, not an obligation to buy.”

“At the end of the day it’s not binding. That’s not a binding purchase. It’s a purchasing framework.”

- Hiringa Executive

- **Significant 2021 Delivery and Guidance Miss**

Furthermore, Hiringa directly contradicted Hyzon’s claims regarding its near-term deliveries.

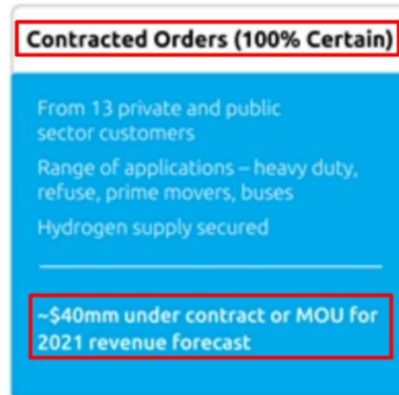
When Hyzon announced the Hiringa contract, it stated that it expected to deliver the first 20 trucks by the end of 2021, accounting for 24% of its guided deliveries in the year. As recently as [August](#), Hyzon reaffirmed this guidance, projecting 85 truck deliveries and \$37 million in revenues in 2021.

(\$USD MILLIONS)	2021E	2022E	2023E	2024E	2025E
VOLUMES					
VEHICLE DELIVERY VOLUMES					
HEAVY TRUCK (36T-50T)	74	513	2,638	5,660	7,400
MEDIUM TRUCK (12T)	0	110	722	1,140	1,860
CITY BUS (12M)	11	35	68	340	600
CLASS 3 TRUCK / VAN	0	0	840	4,435	7,235
TOTAL	85	658	4,268	11,535	17,095
INCOME STATEMENT					
VEHICLE REVENUE	35	190	948	2,176	3,129
FUEL CELL REVENUE	2	6	17	43	105
HYZON ZERO CARBON REVENUE	0	1	7	24	52
TOTAL REVENUE	\$37	\$198	\$972	\$2,242	\$3,286
% GROWTH	nm	412%	392%	131%	47%

Source: [Hyzon Investor Presentation July 2021](#)

In its investor presentation, Hyzon insisted that these 2021 orders are “100% certain.” Not probable, but “100% certain.”

⁴ According to Hiringa, the small amount of capital that they have raised to date is ringfenced for building hydrogen infrastructure projects i.e. refueling stations, and not for buying trucks.



Source: [*Hyzon Investor Presentation February 2021*](#)

Yet Hiringa's executive said that **Hiringa will not take any deliveries of Hyzon trucks in 2021 and expects to receive the first four validation vehicles in March or April 2022, at the earliest.**

Hiringa: "Realistically with the supply chains, I think they will be arriving in March or April [2022]. There's also some work to do in quarter one in the Netherlands before they ship."

Blue Orca: "So you don't actually expect trucks this year? You expect them in the first quarter of 2022?"

Hiringa: "...March through May, if you like, or April through June [2022] is when we are going to be doing validation in New Zealand... it's not [a] full commercial operation."

Blue Orca: "So you don't expect any trucks to be delivered from Hyzon until at least March or April next year. And those are the four validation units?"

Hiringa: "Yep, yep."

- Hiringa Executive

This directly contradicts Hyzon's claims to investors. According to Hyzon's disclosures, Hiringa will account for 24% of the Company's deliveries in 2021, making it the key to whether Hyzon meets its revenue and delivery guidance for this year. But Hiringa told us point blank that no deliveries would be taken in 2021, and the first validation trucks would be delivered in *March or April 2022*, at the earliest.

Furthermore, Hiringa told us that the remaining 16 trucks ordered from Hyzon would be fulfilled based on testing results of the initial four validation vehicles, which they expect to carry out between March and June 2022 at the earliest.

We asked Hiringa if there was any possibility that they might bring forward the order for the 16 trucks, but Hiringa told us that they do not want to take delivery until they build the commercial hydrogen fuel station infrastructure in New Zealand – which Hiringa indicated would not be until the second half of 2022.

"We don't have the [commercial] stations until the second half of the [2022] calendar year. So, we don't want to hold [on to] 16 trucks..."

- Hiringa Executive

Our call with Hiringa suggests that the 1,500-truck deal was more hype than reality. Based on our conversation, we do not think that Hiringa has the obligation, the intention, or the capability to purchase the trucks Hyzon claimed in its announcement.

Ultimately, we think Hyzon continues to mislead investors by reaffirming 2021 guidance when its purportedly major customer is not actually a customer and states point blank that they will not be taking any vehicle deliveries this year.

These names generated considerable enthusiasm, and Hyzon's stock price predictably exploded with investor interest. Yet like many other rotten EV SPACs (e.g. [Lordstown Motors](#)), these name brand customer relationships appear to have been largely illusory.

Two months later, Hyzon's April [investor presentation](#) showed a very different customer list with most of the notable name brands missing.

Spot the difference:



Source: [Hyzon February 2021 Investor Presentation](#), [Hyzon April 2021 Investor Presentation](#)

Coca Cola. Gone. Heineken. Gone. Ikea. Gone.

In the four months between February 2021 and July 2021, nearly all of Hyzon's previously named blue chip customers disappeared from its disclosures altogether. Amusingly, Hyzon was apparently so desperate to fill the gap left by the omission of its blue-chip customers that it included the logo of *Friesland Campina* twice in the latter deck.

In total, Hyzon dropped blue chip customers with orders worth \$700 million in future orders from its subsequent investor presentations.

Company Name	SEC, February 2021	Company, July 2021	5-y Revenue Projection (Units)	5-y Revenue Projection (USD M)
TotalEnergies	✓	✓	500+	200+
Nestle ✗	✓	✗		
Edeka	✓	✓	500+	200+
Coca-Cola ✗	✓	✗	500+	200+
Ikea ✗	✓	✗	500+	200+
Heineken ✗	✓	✗	500+	200+
FrieslandCampina		✓	200+	80+
Fortescue Metals	✓	✓	100+	60+
Air Products & Chemicals ✗	✓	✗	50+	20+
Viva Energy Australia		✓		
Korea Zinc	✓	✓	30	15+
PSA International ✗	✓	✗	300	80+
Southern California Gas ✗	✓	✗		
State of Berlin	✓	✓		
Port de Barcelona	✓	✓		
Port of Antwerp	✓	✓		
Municipality of Groningen		✓		
Neom	✓	✓	250	100
Centurion		✓	50+	20+
Russell Logistics		✓	200	80+
Hiringa Energy		✓	1,400+	500+
Infinite Blue Energy		✓		

Source: Hyzon Investor Presentations [Feb-21](#), [Jul-21](#)

Hyzon achieved early credibility in a crowded field of zero revenue EV SPACs in part by promoting orders from name brand customers, yet without a word it has dropped almost all of these supposed customers from mention in its subsequent investor presentations.

We suspect that Hyzon removed these customers from its disclosures because either the customers backed out of their orders with Hyzon, or the orders were so tenuous to begin with that representing these customers to investors would be misleading to the market.

Between the top of SPAC mania in February and the lukewarm market conditions in July, multiple EV SPACs were exposed for faking customer orders, exaggerating their backlog and exaggerating future revenues, including [XL Fleet](#), [Nikola](#), and [Lordstown Motors](#). Perhaps Hyzon, or more likely their lawyers, got religion and realized they had similarly exaggerated customer commitments in their early SPAC presentations to investors.

Remarkably, despite dropping its largest customers, which collectively accounted for at least \$700 million in supposed future revenue, Hyzon's financial projections have remained unchanged since February.

USD M	February 2021	April 2021	July 2021
Backlog under contracts or MoUs	40	55	83
Contracted and high probability revenue (70%)	150	150	150
Near Term Forecasted Revenue (2021-2022)	235	235	235
Five Year Forecasted Revenue (2021-2025)	6,735	6,735	6,735

Source: Hyzon Investor Presentations: [Feb-21](#), [Apr-21](#), [Jul-21](#)

This makes little sense. If Hyzon ever had credible orders with these blue-chip clients, then why did it drop them from its investor disclosures? And conversely, if Hyzon has lost the previously announced contracts or the discussions have ground to a halt, then the loss or likely loss of almost \$700 million in orders from such critical customers should surely impact its projected revenues going forward.

- **Former Executives Left in Part Because of Concerns over Misrepresentations on Customer Contracts.**

Hyzon's apparent misrepresentation of its key customers at the time of its SPAC is consistent with the comments of one of its former senior executives with whom we spoke. The former executive indicated that he and other early senior Hyzon executives, all of whom left the Company, became uncomfortable with how Hyzon was presenting customer orders to investors.

*"I just didn't like the way it was being presented. A lot of the stuff that they are saying is open to interpretation how you read that. Saying that they've got all of these orders and things. But a lot of them are **all MoUs which as you know in the business mean basically nothing.***

*They were going out, kind of selling it as really what it wasn't at the time. **A bit like unfortunately what Nikola was doing.** It's kind of a lot of hype, and getting money through that hype from people who don't really understand*

You know it's great to show all these pictures of renderings of trucks and orders that you may have, but these orders, most of them... 90% of them are MoUs so there's no binding contract, and if you look from when they've announced those [contracts], still none of those have been built or delivered.

The only three vehicles they have is what's on their website. These are all prototype vehicles. They're not production vehicles of any type. They've basically been hand built at the facilities. These are the things that I think, if you're going to announce that, say that. Be honest about it.

***I was very uncomfortable with that.** A lot of these, if you look at their website, they've loaded lots of them on there of signed meetings they had. All these are MoUs that they've signed. **None of them are binding in any way whatsoever.**"*

- Former Senior Hyzon Executive

SPACs are notorious for fabricating customer contracts or presenting mere discussions as binding orders. Either Hyzon was initially misleading investors about the contracts with major customers or something changed causing it to remove them from its disclosures. In our opinion, Hyzon was either initially misleading the market or it lost these orders between February and July. Either way, we cannot see a scenario in which Hyzon's revenue projections could remain unchanged.

4. Hyzon is Just a Repackaging of Its Chinese Parent Company, a 17-Year-Old Business Recently Valued as a Microcap

There is a misconception in the market, perpetuated by the Company, that Hyzon has a unique first mover advantage because it has access to the allegedly valuable “fuel cell expertise” of its parent company, *Horizon*.

Horizon is described by the sell side as a “Singapore-based” company which has “delivered hundreds of fuel cells to date” – purportedly differentiating Hyzon from its competitors which are yet to deliver a meaningful number of vehicles.

Number of Fuel Cell Commercial Vehicles Delivered and Projected to be Delivered by 2023

	 HYZON	 NIKOLA	 HYUNDAI	 TOYOTA	 KENWORTH	 HONDA ISUZU	 DAIMLER
FUEL CELL COMMERCIAL VEHICLES DELIVERED BY END OF 2020	~500 ¹	0	10s	10s	0	0	0
FUEL CELL COMMERCIAL VEHICLES TO BE DEPLOYED BY END OF 2023	5,000 ²	2,000	2,000	No public info	No public info	No public info	No public info

Source: [Hyzon Investor Presentation February](#), p31

The reality, in our opinion, is that Hyzon is simply a SPAC repackaging of a flailing Chinese parent which delisted from the Chinese OTC market at an enterprise value of only \$190 million, and which for 17 years had failed to gain meaningful traction with its fuel cell technology.

Between [June 2018](#) and [March 2021](#), Hyzon’s parent, *Jiangsu Horizon* (“*Horizon*”) was listed on the National Equities Exchange and Quotations (NEEQ), the over-the-counter exchange for Chinese small and medium-sized enterprises. During this time, it was required to file its audited financials and interim/annual reports with Chinese regulators.

Despite Hyzon’s attempts to conceal its Chinese origins, *Horizon*’s employees and fuel cell manufacturing facilities are located in China. In [March 2021](#), *Horizon* de-registered from the Chinese stock exchange. Two months prior, in January 2021 – which we should note was the peak of EV stock market mania – stock options issued to *Horizon*’s employees valued *Horizon*’s business at a paltry \$190 million.⁵

三、本激励计划拟向激励对象授予 180.3765 万份股票期权，涉及的标的股票种类为普通股，占本激励计划草案公告日公司股本总额 3,607.5301 万股的 5%。其中首次授予 160.6247 万份，占本股权激励计划提交公司股东大会审议时股本总额的 4.4525%；预留权益 19.7518 万份，占本股权激励计划提交股东大会审议时股本总额的 0.5475%，预留部分占本股权激励计划拟授予数量的 10.9503%，预留比例未超过本激励计划拟授予权益数量的 20%。

五、本激励计划授予的股票期权的行权价格为 36.0357 元/股。在本激励计

Company's total share
outstanding of 36 million

The exercise price of the
stock option is 36.0375
RMB per share

⁵ This valuation was in line with Jiangsu Horizon’s external investment round in [August 2020](#) which valued *Horizon*’s equity at \$200 million.

Horizon Enterprise Value as of January 2021

	RMB M	USD M
Total Shares Outstanding (m)	36.1	36.1
Share Price (RMB, USD)	36.04	5.54
Equity Value	1,300	200
(-) Cash and Equivalents	(60)	(9)
(-) Equity Investments	(3)	(0)
Enterprise Value	1,237	190

Source: http://www.neeq.com.cn/disclosure/2021/2021-01-26/1611654052_860439.pdf

FX rate assumed at 6.50 RMB/USD

It is no wonder Hyzon kept quiet about this to investors. Hyzon is basically the same business as *Horizon* yet trades at **10x** the enterprise value of the Chinese parent company, which developed and manufactures the fuel cells supposedly underpinning the value proposition of the SPAC.

Nor do the parent's fuel cells appear to be much in demand. Public filings by *Horizon* during its time as a public company also indicate that its sales volumes have fallen dramatically since 2019. In its public filings, *Horizon* (parent) stated that in 2019, it installed its fuel cell battery systems in approximately 400 vehicles.

The company completed the delivery of nearly 400 fuel cell systems for vehicles in 2019

公司于 2019 年完成近 400 台车用燃料电池系统的交货，其中搭载公司 VL II 代 60kW 燃料电池系统的 8 吨物流车已完成超过 300 台装车，搭载公司 95kW 燃料电池系统的 42 吨牵引车及已完成上牌并投入示范运行，为公司进一步拓展商业化的大功率车用燃料电池市场打下了坚实的基础。在海外市场，借助公司 *Horizon Fuel Cell* 的品牌知名度，公司已陆续承接了韩国燃料电池轨道列车等项目，并正在推进美国、欧洲、澳大利亚、新西兰等地客户燃料电池重卡及客车商业化项目。

Source: [Jiangsu Horizon's 2019 Annual Report](#)

Horizon delisted before it was required to publish its 2020 annual report, but based on Hyzon's SPAC disclosures, *Horizon* only sold approximately 100 fuel cells in 2020, representing a 75% decline in unit sales year-on-year.⁶

More recently, an [article](#) by a Chinese energy focused research organization *the Orange Group*, stated that *Horizon* had sold a total of 538 fuel cells as of June 2021 – implying that *Horizon* sold a further 38 fuel cells in the first half of 2021.

As of June 2021, a total of 369 hydrogen fuel cell systems provided by Jiangsu Horizon have been licensed in China.

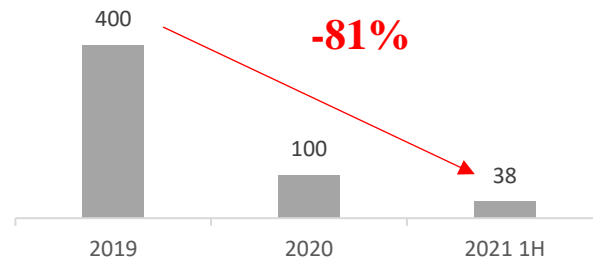
截止2021年6月，搭配清能股份提供的氢燃料电池系统在国内累计实现上牌共计369台，市场主要分布在上海、武汉、苏州、南通，布局巩固和拓展国内市场。同时，清能股份在新加坡、美国、澳大利亚、荷兰、香港等地设有多家子公司和办事处，布局国际市场。

此外，清能股份还向第三方燃料电池系统企业销售电堆，截止2021年6月已完成169台配套车辆上牌，即搭载清能股份系统及电堆的车辆总计上牌量为538套。

In addition, *Horizon* also sell fuel cell stacks to third-party fuel cell system companies. As of June 2021, 169 vehicles have been licensed, that is, the total number of licensed vehicles equipped with *Horizon's* fuel cell system and stacks is 538 sets.

Source: <https://www.shangyexinzhhi.com/article/4198728.html>

⁶ *Horizon* disclosed to Chinese investors that it sold 400 fuel cells in 2019. In its SPAC presentation, Hyzon stated that its parent *Horizon* had sold a total of 500 fuel cells by the end of 2020, indicating that *Horizon* sold approximately 100 fuel cells in 2020.

Horizon Fuel Cells Sold by Horizon (Parent) 2019-2021

Source: [Hyzon July 2021 Investor Presentation](#), [Jiangsu Horizon's 2019 Annual Report](#), [Orange Group Article](#)

Note: 81% decline is based on annualized adjustment for 2021.

If Horizon's fuel cells were so valuable, why has it only sold 538 units in the past 17 years, and why does it appear that unit sales have declined 81% since 2019?

Hyzon's attempt to conjure a track record for itself by equating fuel cell sales by its parent to fully fledged vehicle deliveries is also absurd. Producing fuel cells is in no way akin to producing electric vehicles. In 2019 alone there were more than 70,000 hydrogen fuel cells sold globally.⁷ Hyzon's parent, *Horizon* has no discernable first mover advantage in this field. It is not even a significant player measured by market share.

Hyzon pitches itself as an asset-light American manufacturer of hydrogen fuel cells. Yet this same fuel cell technology is owned and manufactured by its parent company in China which has not managed to gain traction selling this technology in more than 17 years of trying. The parent's unit sales are in decline, which in our view, speaks volumes about the lack of demand for its technology. Chinese investors valued the fuel cell business at less than \$200 million in January 2021, and likely knew far better.

⁷ <https://www.edisongroup.com/wp-content/uploads/2020/12/Edison-Hydrogen-report-v10.pdf>, page 16

5. Hyzon's Projections are Fantasy: Parent's Financials and Former Executives Suggest Hyzon May Earn 5-10% Gross Margins, at Best.

An interview with a former Hyzon executive and the financials of Hyzon's Chinese parent suggest that Hyzon's projected financials are likely a fantasy.

Without any current revenue, Hyzon's valuation relies entirely on its self-serving financial projections. Hyzon forecasts in its SPAC presentations that it will turn cash flow positive as early as 2023. By 2025, Hyzon tells investors that it will generate annual EBITDA of \$505 million.

One of the key drivers of these future financials is Hyzon's projected gross margins. Hyzon forecasts that its gross profit margins on electric vehicles will be 32% in 2021 and reach as high as 33.6% by 2025.

(\$USD MILLIONS)	2021E	2022E	2023E	2024E	2025E
TOTAL GROSS PROFIT	\$12	\$62	\$299	\$735	\$1,106
GROSS MARGIN %	32.0%	31.5%	30.8%	32.8%	33.6%

Source: [Hyzon July 2021 Investor Presentation](#)

We think Hyzon's projected margins are grossly inflated. **We spoke to a former executive from Hyzon who indicated that Hyzon's retrofitting model of production would yield no more than 5-10% gross margins.**

"[The margins are] quite small, because you're paying out a lot to everyone else. You're buying the truck from someone. You're buying the fuel cell. The only thing you're getting paid for is basically the fitting of [the fuel cell] into the system.

I wouldn't have thought it would be more than five to ten percent [gross margins] max. And ten percent would be doing really well.

There's a lot of cash going out. It's not like Mercedes or Volvo or DAF. They're building their trucks, their own chassis, their own engines, their own bodies. It's not the same as that where you've got a lot of vertical integration in which the money is staying inside the Company. A lot of it is going out. It's going out to Horizon. It's going out to DAF or wherever they're buying the trucks from. You're having to buy the motors. You're buying the controllers. The fuel system for the hydrogen fuel tanks. All that system is all being bought in. So basically, what you're making is what you can make on top of all that."

- Former Senior Hyzon Executive

Hyzon purchases ready-made trucks from third-party manufacturers, and then retrofits these trucks with its parent's fuel cells. Hyzon even outsources the retrofitting to third parties.⁸ Hyzon's former executive was confident that this business model would yield, at best, 5-10% gross margins.

Similarly, the senior executive we spoke to at Hyzon's channel partner, Hiringa, stated that the economics of the trucks were so stretched that it was simply not possible to accommodate a commission charge on top.

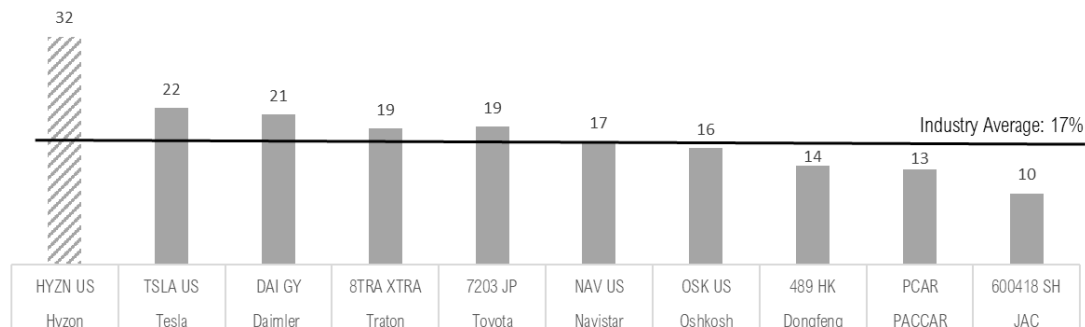
"We contemplated doing that [charging commissions]. But the models to get this going can't take extra ticket clippings."

- Senior Hiringa Executive

⁸ In Europe, this retrofitting process is carried out by Hyzon's joint venture partner – *Holthausen* – a small retrofitting workshop run by a father and a son in the Netherlands. In the US, Hyzon plans to outsource the retrofitting process altogether to *Fontaine Modification* – a third party provider of vehicle assembly services.

To put it in perspective, a 32% gross margin is nearly twice the industry average for vehicle manufacturers. The leading EV brand, Tesla, reports a gross margin of 22%.

Hyzon vs. Established Vehicle Manufacturers: LTM Gross Margin (%)

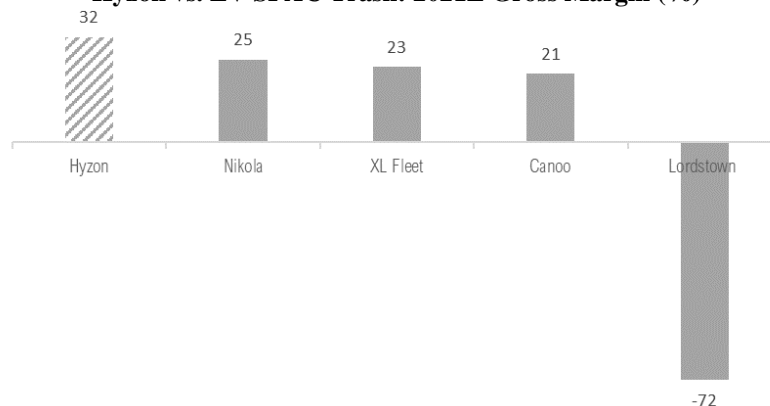


Source: Capital IQ, [Hyzon Investor Presentation](#)

For context, a 2020 [whitepaper](#) jointly written by Deloitte and Ballard Power Systems stated gross margins for hydrogen vehicle manufacturers (FCEV) of 14%. Even these self-serving industry projections, drafted to justify lofty public valuations, only project half the gross margins for FCEV companies as Hyzon's SPAC projections.

Even in the fictitious world of EV SPACs, Hyzon's claimed future margins look egregious. Notorious SPAC trash [Nikola](#) and [XL Fleet](#) only projected gross margins for 2021 of 23-25%.

Hyzon vs. EV SPAC Trash: 2021E Gross Margin (%)



Source: [Hyzon Investor Presentation](#), [Nikola](#), [XL Fleet](#), [Canoo](#), [Lordstown](#)

Yet even compared with the most absurd SPAC projections, Hyzon's claims appear fantasy. Many of these competitors have established brands, unique IP, and huge economies of scale. In this context, Hyzon's projected margins appear to be a fantasy.

The financials of Hyzon's parent company corroborate this view. Hyzon does not currently manufacture fuel cells. It buys them from its Chinese parent company. Hyzon's plan is to license the technology to produce hydrogen fuel cells at its facility in Rochester, NY, which will not be ready until the latter half of 2022, at the earliest.

Even when Hyzon starts producing its own fuel cells, its parent's financials suggest that its projected margins are unlikely to materialize. *Horizon's* Chinese filings reported a gross profit of USD 21,000 per fuel cell sold.

(三) 合并利润表

项目	附注	2019 年
一、营业总收入 <i>Sales Revenue</i>		202,039,500.11
其中：营业收入	五、25	202,039,500.11
利息收入		
已赚保费		
手续费及佣金收入		
二、营业总成本		193,366,812.87
其中：营业成本 <i>Cost of Goods Sold</i>	五、25	142,924,740.76

Source: [Jiangsu Horizon's 2019 Annual Report](#)

Jiangsu Horizon	RMB	USD
Sales Revenue	202,039,500	29,242,521
COGS	(142,924,741)	(20,686,448)
Gross Profit	59,114,759	8,556,072
Fuel Cell Units Sold	400	400
Gross Profit Per Fuel Cell System	147,787	21,390

Source: [Jiangsu Horizon's 2019 Annual Report](#).

According to Hyzon's projections, it expects to sell its vehicles for USD 411,765 per truck on average. So even if it can capture the same gross profit as its parent from "just the fuel cells," that equates to a gross margin of just 5% on the overall sales price of the vehicle.

	2021E
Total Vehicle Revenue (USD)	35,000,000
Vehicle Volume	85
Price per truck (USD)	411,765
Gross Profit Per Fuel Cell System (USD)	21,390
Gross Margin	5%

Source: [Hyzon July 2021 Investor Presentation](#), Blue Orca Calculation

The point is that Hyzon is projecting 30% margins on vehicles. But based on its parent's financials, we calculate that the "just the fuel cells" model will likely produce only 5% gross margins because the value of the fuel cell to the overall production process is limited.

If we apply industry average gross margins of 15% to Hyzon's projected revenues, the Company will not turn cash positive in the next five years. The picture looks even more dire if we apply a more appropriate gross margin assumption of 5-10%, which the former Hyzon executive we interviewed says is more realistic.

At Gross Margins Below 15% Hyzon Will Generate Negative EBITDA in 2025

		EBITDA Sensitivity to Gross Margin (USDm)				
		Year				
		2021E	2022E	2023E	2024E	2025E
Gross Margin	5%	(83)	(77)	(163)	(297)	(437)
	10%	(81)	(67)	(115)	(185)	(272)
	15%	(79)	(57)	(66)	(73)	(108)
	20%	(78)	(47)	(18)	39	56
	25%	(76)	(38)	31	152	221
	30%	(74)	(28)	80	264	385

		Free Cash Flow Sensitivity to Gross Margin (USDm)				
		Year				
		2021E	2022E	2023E	2024E	2025E
Gross Margin	5%	(146)	(255)	(324)	(399)	(563)
	10%	(144)	(245)	(276)	(287)	(398)
	15%	(142)	(235)	(227)	(175)	(234)
	20%	(141)	(225)	(179)	(63)	(70)
	25%	(139)	(216)	(130)	50	95
	30%	(137)	(206)	(81)	162	259

Source: Hyzon Projections, Blue Orca Calculation

Note Hyzon guides 31.5% - 33.6% gross margins between 2021-2025. Assumes other operating costs and Capex in line with Company estimates. Free Cash Flow calculated as EBITDA less guided Capex.

We think Hyzon will be lucky to generate 5-10% gross margins, given its limited value in the production chain. But even near industry standard gross margins (15%), Hyzon will not generate positive EBITDA for the next five years. The sensitivity analysis on cash flows is even more dire, showing, in our opinion, that Hyzon is unlikely to generate free cash flows at any point in the foreseeable future.

6. Two CTO Resignations In 15 Months

Hyzon's stock price is contingent on the value of its technology to generate future revenues. We view it as a significant red flag that **two of Hyzon's CTOs have resigned in the past 15 months**, even though Hyzon was only formed in January 2020.

On September 2, 2021, Hyzon [announced](#) that its Chief Technology Officer, Gary Robb, resigned after just 15 months in the role. The announcement should concern investors because as with other early-stage companies, Hyzon's valuation and future success rests largely on its product execution for which the CTO is responsible.

Hyzon claimed that Gary Robb retired. But we spoke to a former Hyzon executive who expressed skepticism about this narrative given Robb's relatively young age.

"You know, they say he's retiring but ... it's kind of young to be retiring."

- Former Hyzon Executive

Undisclosed to investors, Gary Robb is actually Hyzon's second Chief Technology Officer to resign since Hyzon's inception in January 2020. Hyzon's first CTO – Ian Thompson – lasted just five months in the role before resigning in June 2020.



Chief Technology Officer

Hyzon Motors · Full-time
Feb 2020 – Jun 2020 · 5 mos
Michigan, United States

Lead and direct Vehicle development, Prototype, Pilot and Production Facilities

Lead and direct Full Vehicle Compliance and type approval for Global markets

Source: <https://www.linkedin.com/in/ian-thompson-271b8621/>

That makes two CTO resignations for Hyzon in 15 months, even though the Company was only formed in January 2020.

CTO	Start Date	End Date	Tenure
Ian Thompson	Feb-20	Jun-20	5 mos
Gary Robb	Jun-20	Sep-21	1 yr 3 mos
Shinichi Hirano	Sep-21	Present	1 mos

Source: <https://www.linkedin.com/in/ian-thompson-271b8621/>, [Hyzon Press Release](#)

If Hyzon's technology is supposedly world class, and the foundation for its hockey-stick-like future revenue growth, we question why the critical officers in charge of such technology apparently have such little faith in either the Company or the technology (or both) that they both stepped down so abruptly and after so little time at Hyzon, despite the obvious financial incentives to remain.

Ultimately, we think Hyzon's parent has taken advantage of the general suspension of disbelief in financial markets to enrich insiders by repackaging an old technology in a fig leaf of misleading deal announcements and illusory customer contracts.

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